

312-406

Fig. 2.

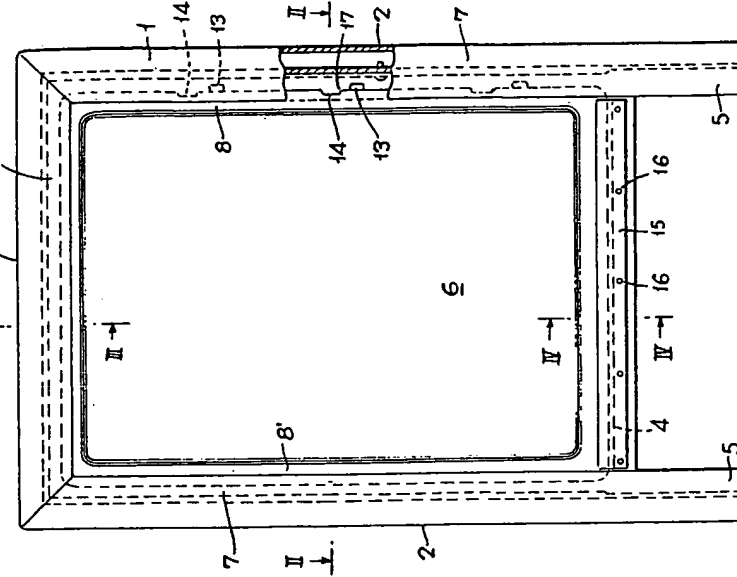


Fig. 1.

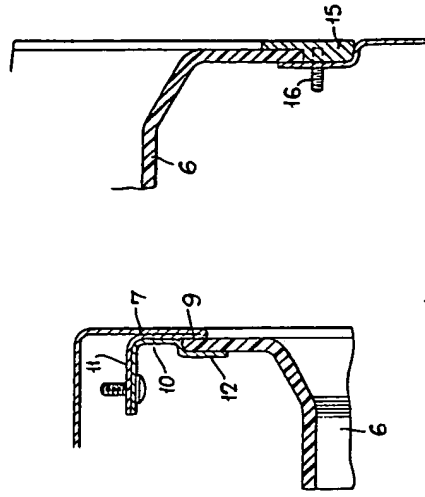
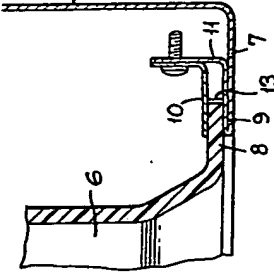
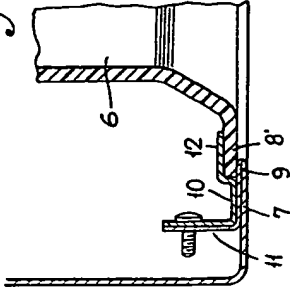


Fig. 4.

Fig. 3.

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# PATENT SPECIFICATION

850,555

DRAWINGS ATTACHED.

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## COMPLETE SPECIFICATION.

### Improvements relating to Cabinets for Refrigerators.

We, A.E.I.-HOTPOINT LIMITED (formerly known as The Hotpoint Electric Appliance Company Limited), a British Company having its registered office at 33 Grosvenor Place, London, S.W.1, (formerly of Crown House, Aldwych, London, W.C.2), do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to refrigerator cabinets of the kind in which the outer cabinet is provided with a liner, the wall of which is spaced from the wall of the cabinet except at the door opening, the liner being held in place in the cabinet by securing an outwardly directed flange on the liner to the inwardly directed flange of the cabinet at the door opening.

In refrigerator cabinets of the kind set forth it is usual to insert the liner into the cabinet at the door opening and secure the flange of the liner to the flange on the cabinet by means of screws the heads of which are subsequently covered by a resilient gasket which seals the door of the cabinet when the door is closed.

The object of the present invention is to provide an improved construction in which the number of screws required for securing the liner to the cabinet is reduced, thus facilitating the assembly.

In a refrigerator cabinet of the kind set forth, according to the invention, the outwardly directed flange on the liner is located within channels formed behind the inwardly directed flanges on two parallel sides of the rectangular door opening, the liner being provided along the edge of one side only

with spaced notches adapted to engage correspondingly spaced projections in one of said channels, the depth of the notches being such that, when the flange of the liner is inserted into said one channel, the flange on the opposed parallel side of the liner clears the adjacent rim of the inwardly directed flange of the cabinet, whereby on displacement of the liner in a direction normal to said parallel sides, the flange of the liner enters the channel, the depth of said channel being such that the displacement of the liner is insufficient for the notched flange to disengage from the channel containing the projections.

Thus the assembly of the liner into the cabinet is effected by inserting the liner into the door opening in the cabinet, introducing the notched flange into the channel having the spaced projections therein, completing the insertion of the liner into the cabinet until the flange of the liner lying along the parallel side opposite to the notched flange clears the inner rim of the door opening, and then sliding the liner laterally so that the unnotched flange enters the channel provided for it. The liner may then be secured by screws located only along one of the remaining sides of the door opening.

When the liner has thus been inserted into the cabinet and displaced transversely in directions normal to one another, the liner is locked in position owing to the projections engaging the rim of the flange on the liner, and thereby preventing such transverse movement of the liner as will enable the opposite flange on the liner to be released from the channel in which it is located. A single row of screws located at one of the two remaining edges of the flange of the liner will then be sufficient to secure the

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liner in position in the door opening of the cabinet.

Preferably at the rim of the flange at which the screws are to be located, a recess is provided in the flange of the cabinet to receive a fillet engaging the rim of the flange on the liner and prevent the movement of the liner with relation to the cabinet. The fillet may be held in position by screws securing it to the flange on the cabinet.

The manner in which the invention is to be carried out to effect will be more readily understood from the following description of the accompanying drawings, in which:—

Fig. 1 is a front view of a refrigerator cabinet with the liner held in place therein; Fig. 2 is a cross-section on the line II—II of Fig. 1;

Fig. 3 is a cross-section on the line III—III of Fig. 1; and

Fig. 4 is a cross-section on the line IV—IV of Fig. 1, Figs. 2, 3 and 4 being on a larger scale to indicate more accurately the details which they illustrate.

Referring to the drawings and particularly to Fig. 1, the cabinet is shown as consisting of an outer cabinet having side walls 2 and top and bottom walls 3, 4, respectively. The walls are formed with inwardly directed flanges 7 defining a door opening, and the side walls are shown as being extended to form feet 5 for supporting the refrigerator. To the outer cabinet is secured the inner liner 6, the liner being introduced into the outer cabinet through the door opening therein, and is secured in position with its wall spaced from that of the cabinet by affixing to the inwardly directed flange 7 of the cabinet an outwardly directed flange 8 of the liner 6. The introduction of the liner into position in the cabinet and its securement therein forms the subject of the invention.

Around three sides of the inner face of the door opening formed by the inwardly directed flanges 7 of the outer cabinet is provided a channel 9, see Figs. 2 and 3. The channel 9 is constituted by securing a flanged member 10 of generally L-shape in cross-section to a rearwardly turned flange 11 formed by turning back the inner rim of the outer wall of the flange 7, also as illustrated in Figs. 2 and 3. For a purpose mentioned hereinafter one limb of the flanged members 10 located along the upper and left-hand side edges of the door opening extends inwardly beyond the adjacent flange 7 and is formed with a shoulder portion 12 between which and the flange 7 the channel 9 is located. Along the channel 9 lying on one side only of the cabinet, illustrated as being the right-hand side in Fig. 1, are provided spaced projections 13, the projections being secured between the flange 7 and the parallel limb of the flanged member 10. The corresponding outwardly

directed flange 8 of the liner 6 is provided with spaced notches 14 adapted to receive the projections 13. The spaced notches 14 are of such depth that when the liner is introduced into the cabinet with the right-hand flange 8 of the liner inserted in the channel 9 and the notches engaging the projections 13, the flange 8' on the opposite parallel side of the liner can clear the rim of the corresponding flange 7 of the cabinet. This allows the liner 6 to be introduced into the cabinet with the flange 8' in a position to enter the channel 9 formed on the left-hand side of the cabinet. The extension of the shoulder 12 on the flanged member 10 located at the left-hand side of the cabinet beyond the flange 7 now forms an abutment against which the flange 8' of the liner can rest when the liner is entered into the cabinet, and thus facilitate the introduction of the flange 8' into the channel 9.

Having entered the liner 6 into the cabinet with the notches 14 engaging the projections 13 and the flange 8' ready to enter the channel 9, the whole liner is then displaced transversely with respect to the cabinet so that the flange 8' enters the channel 9, the corresponding flange 8 on the other side of the liner being still retained within the channel 9 at that side. The depth of the channel 9 is such that the displacement of the liner is insufficient for the notched flange to disengage from the channel containing the projections 13. The outer rim of the flange 8 of the liner has, by the displacement of the liner with respect to the cabinet, allowed the notches 14 to be released from the projections 13 and the liner as a whole can now be displaced longitudinally in the direction of the parallel sides of the door opening, i.e. at right angles to the initial transverse movement, until the notches and projections are staggered and the projections 13 engage the outer rim of the flange 8 on the liner, as indicated in the partial cross-section shown in Fig. 1. The liner is now held rigidly against transverse displacement within the cabinet. It may be retained in this position by means of a fillet 15 which interferes with the lower edge of the liner, the fillet being held in place by screws 16.

Preferably, the lower edges of the notches 14 are formed with ramps 17 which facilitate the disengagement of the notches 14 with the projections 13 when the longitudinal movement of the liner is effected.

The projections 13 and notches 14 are shown as being provided on one of the vertical sides of the liner for a rectangular cabinet; it is clear that they may be provided in one of the upper or lower horizontal sides of the cabinet, if desired. In this case the directions of the displacement of the liner will be reversed and the fillet 15 will be pro-

vided along one of the vertical sides of the liner.

The liner is preferably made of plastic material, e.g. polystyrene.

5 It will be evident that, by the invention, the application of the liner to the outer cabinet is greatly facilitated, only the fillet 15 and retaining screws 16 being required to hold the final assembly in position.

#### 10 WHAT WE CLAIM IS:—

1. A refrigerator cabinet of the kind set forth wherein the outwardly directed flange on the liner is located within channels formed behind the inwardly directed flanges on two 15 parallel sides of the rectangular door opening, the liner being provided along the edge of one side only with spaced notches adapted to engage correspondingly spaced projections in one of said channels, the depth of the notches being such that, when the 20 flange of the liner is inserted into said one channel, the flange on the opposed parallel side of the liner clears the adjacent rim of the inwardly directed flange of the cabinet, whereby on displacement of the liner in a 25 direction normal to said parallel sides, the flange of the liner enters the channel, the depth of said channel being such that the displacement of the liner is insufficient for the notched flange to disengage from the 30 channel containing the projections.

2. A refrigerator cabinet as claimed in Claim 1, in which the liner is retained in the 35 cabinet by providing securing means for preventing subsequent movement of the liner in a direction normal to said parallel sides.

3. A refrigerator cabinet as claimed in Claim 1, in which the liner is retained in the cabinet by means of a fillet secured to the cabinet along a flange of the door opening 40 transverse to the parallel sides, subsequent to the displacement of the liner in the direction of the opposed parallel sides to a distance sufficient to stagger the notches and the projections. 45

4. A refrigerator cabinet as claimed in Claim 1, 2 or 3, in which the rim of the channel lying along the parallel side of the door opening opposite that in which the 50 projections are located extends beyond the flange of the cabinet so as to form an abutment against which the flange of the liner rests.

5. A refrigerator cabinet as claimed in any preceding claim, in which an edge of 55 each notch is formed as a ramp to facilitate the disengagement of the notches from the projections.

6. A refrigerator cabinet as claimed in any preceding claim, in which each channel 60 is constructed by securing a flanged member to a rearwardly turned flange on the inwardly directed flange in the cabinet wall around the door opening.

7. A refrigerator cabinet constructed 65 substantially as hereinbefore described with reference to the accompanying drawings.

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#### PROVISIONAL SPECIFICATION.

#### Improvements relating to Cabinets for Refrigerators.

70 We, THE HOTPOINT ELECTRIC APPLIANCE COMPANY LIMITED, a British Company, having its registered office at Crown House, Aldwych, London, W.C.2, do hereby declare this invention to be described in the following statement:—

75 This invention relates to refrigerator cabinets of the kind in which the outer cabinet is provided with a liner, the wall of which is spaced from the wall of the cabinet except at the door opening, the liner being held in place in the cabinet by securing an out- 80 wardly directed flange on the liner to the inwardly directed flange of the cabinet at the door opening.

85 In refrigerator cabinets of the kind set forth it is usual to insert the liner into the cabinet at the door opening and secure the flange of the liner to the flange on the cabinet by means of screws the heads of which are subsequently covered by a resilient

gasket which seals the door of the cabinet when the door is closed. 90

The object of the present invention is to provide an improved construction in which the number of screws required for securing the liner to the cabinet is reduced, thus facili- 95 tating the assembly.

In a refrigerator cabinet of the kind set forth, according to the invention, the out- 100 wardly directed flange of the liner is provided along the edge of one side only with spaced notches adapted to engage correspondingly spaced projections, located in a channel formed behind the inwardly directed flange of the cabinet, the notches being of such depth that when the flange of the liner is inserted into the channel, a flange on the 105 opposite side of the liner can clear the rim of the corresponding flange of the cabinet, the corresponding flange of the cabinet having behind it a channel into which the rim of the liner is introduced by moving the 110

liner laterally until the flange is received in the channel.

Thus the assembly of the liner into the cabinet is effected by inserting the liner into the door opening in the cabinet, introducing the notched flange into the channel having the spaced projections therein, completing the insertion of the liner into the cabinet until the flange of the liner lying along the side opposite to the notched flange clears the inner rim of the door opening, and then sliding the liner laterally so that the unnotched flange enters the channel provided for it. The liner may then be secured by screws located only along the remaining sides of the door opening.

Preferably, however, the notches are arranged to have differing depths, the parts of differing depths being joined by a ramp. With such an arrangement the liner is inserted into the cabinet so that the greatest depth of each notch is located opposite the corresponding projection, and the liner is then slid transversely so that its opposite unnotched rim lies in the channel provided for it. The liner is then slid transversely in a direction at right angles to the initial transverse movement until the projections lie within the portion of the notches which are of less depth than the remainder. The ramps facilitate this transverse movement of the liner. When the liner has thus been inserted into the cabinet and slid transversely in directions normal to one another, the cabinet is locked in position owing to the projections engaging the notches at their lesser depth, and thereby preventing such transverse movement of the liner as will enable the opposite flange on the liner to be released from the channel in which it is located. A single row of screws located at one of the two remaining edges of the flange of the liner will then be sufficient to secure the liner in position in the door opening of

the cabinet. Preferably at the rim of the flange at which the screws are to be located, a recess is provided in the flange of the cabinet to receive a fillet engaging the rim of the flange on the liner and prevent the movement of the liner with relation to the cabinet. The fillet may be held in position by screws securing it to the flange on the cabinet.

The channels may be formed behind the edge of the flange in the cabinet by means of strips L-shaped in cross-section secured to the flange on the cabinet at the end of the shorter limb of the L. The edges of the strips may then project inwardly from the door opening in the cabinet so as to locate the flange on the liner when it is inserted into the cabinet. The channel which receives the unnotched edge of the flange of the liner is made of such depth as to restrict the movement of the liner in the opening to an amount just sufficient to take up the allowable movement provided by the narrower portions of the notches in the opposite edge of the flange of the liner.

Refrigerator cabinets are commonly made of rectangular shape and the notches are then preferably provided in one of the longer sides of the liner. The transverse movement of the liner with respect to the cabinet is thus made across the narrower dimension of the cabinet and the final movement to lock the liner in position in the door opening is made along the greater dimension of the cabinet.

The liner is preferably made of a plastic material, e.g. polystyrene.

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